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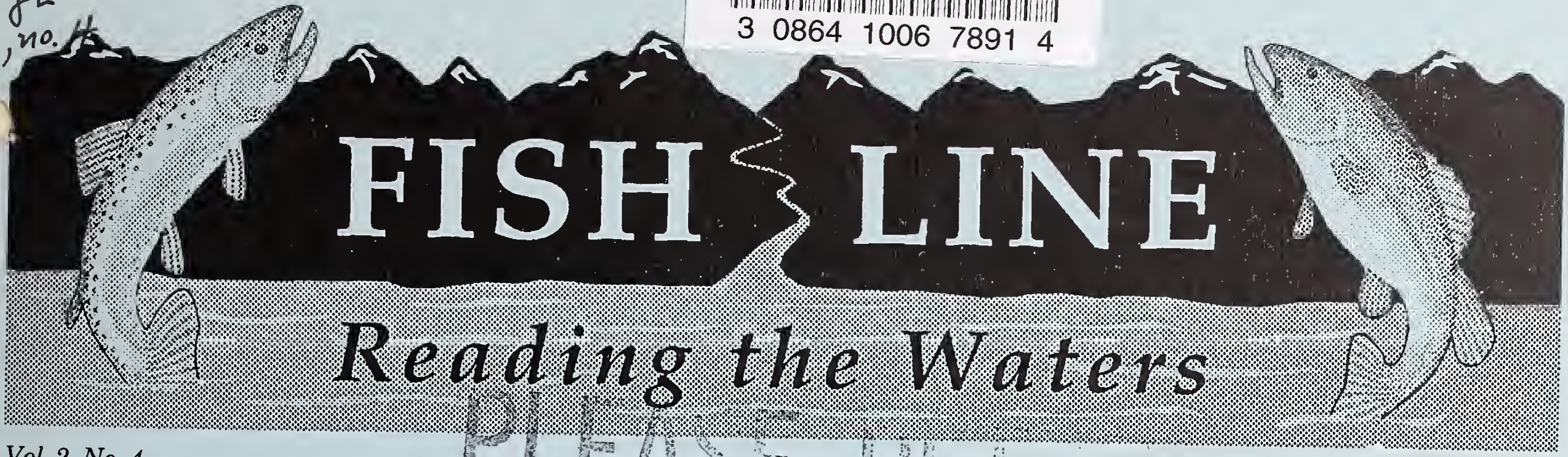


FISH LINE

Reading the Waters

PLEASE RETURN

Vol. 2, No. 4
October 1990

Kokanee Make Hauser A Hit

Hauser Reservoir, located 10 miles northeast of Helena on the Missouri River, has recently developed into one of the most productive and popular kokanee fisheries in the Pacific Northwest. In increasing numbers, avid anglers and hungry bald eagles have been gathering at Hauser Reservoir seeking to catch this landlocked form of the Pacific sockeye salmon. Anglers are keying in on an opportunity to hook and land a feisty fish that averages about 15½ inches in length and almost two pounds in weight. Bald eagles, on the other hand, are keying in on the fall spawning run of kokanee to feed on dead and dying fish.

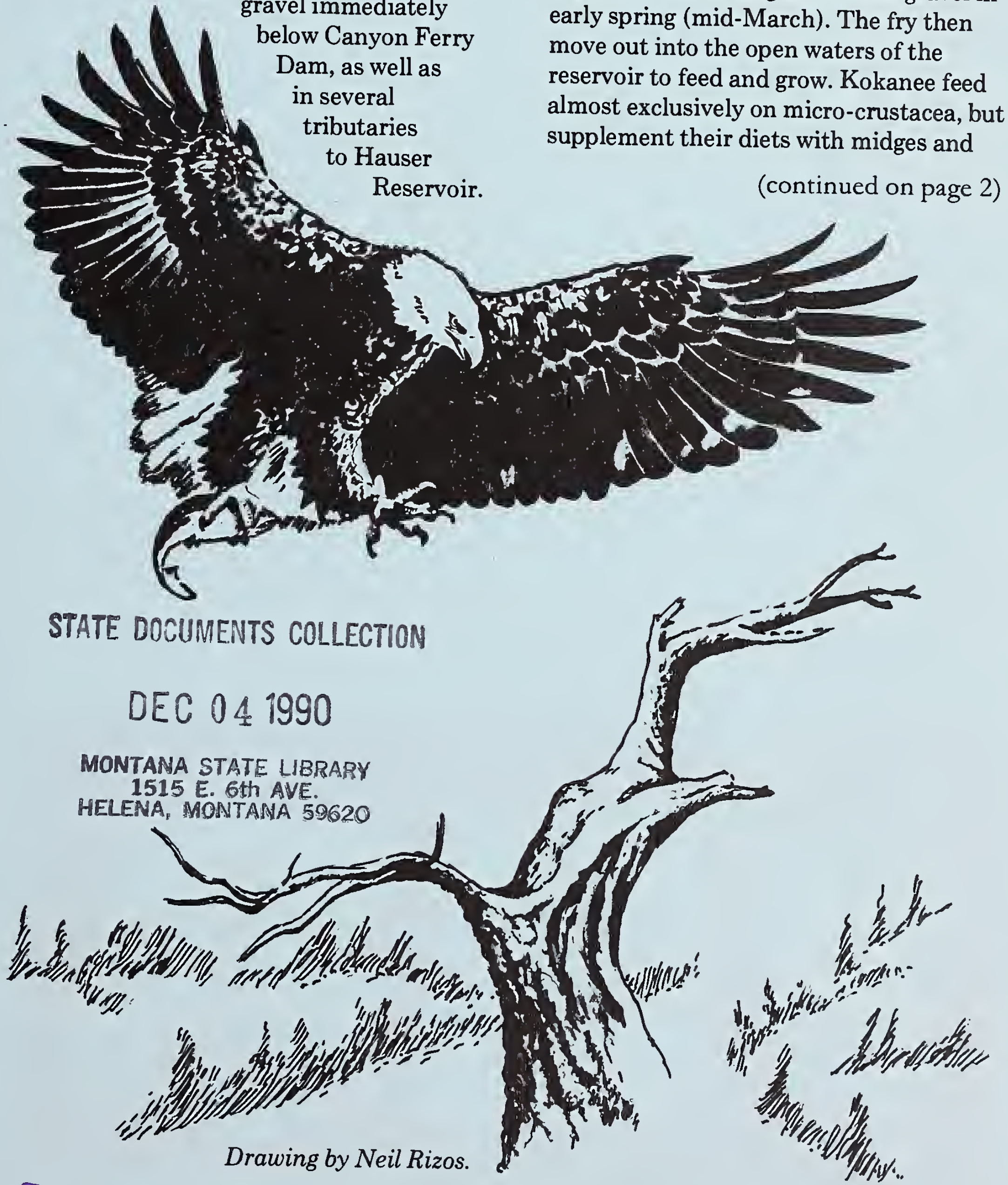
This increasingly popular kokanee fishery has evolved through a series of unexpected events. Although kokanee were stocked into Hauser Reservoir as early as 1950, the salmon found in the reservoir today probably originated from fish that were planted into Canyon Ferry Reservoir in the late 1960s. Apparently, some of the kokanee fry stocked into Canyon Ferry Reservoir made their way into the Helena Valley Regulating Reservoir through a siphon used to transfer water between the two reservoirs. Some of the kokanee siphoned into the Regulating Reservoir survived and produced a very popular fishery with local anglers. Because spawning habitat for salmon is inadequate in the Regulating Reservoir, FW&P annually stocks kokanee into this small storage reservoir to maintain the fishery.

The kokanee population in Hauser Reservoir began to develop when the Regulating Reservoir was drained for repairs in 1978 when fish were apparently flushed through the irrigation system into Hauser. Since the early 1980s, the kokanee population in Hauser has flourished.

The dramatic expansion of the Hauser kokanee population has occurred solely through natural reproduction — FW&P does not stock kokanee into the reservoir. Kokanee spawn from approximately mid-October through mid-December in the gravel immediately below Canyon Ferry Dam, as well as in several tributaries to Hauser Reservoir. Although not documented, kokanee may also spawn along the shoreline of Hauser Reservoir in areas where groundwater is discharged.

In general, the life cycle of the kokanee begins when it emerges from the gravel in early spring (mid-March). The fry then move out into the open waters of the reservoir to feed and grow. Kokanee feed almost exclusively on micro-crustacea, but supplement their diets with midges and

(continued on page 2)



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Drawing by Neil Rizos.

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Smoke-curing Your Fish

If you're a lucky fisherman, you'll probably have plenty of fish to cure in a smoker. But before you even think about curing them, make sure you handle your fish carefully. You will have a better tasting end product if your fish is not bruised or mistreated in the catching, cleaning and preparation stages. Smoke-curing won't restore freshness lost because of poor prior handling. Clean your fish as quickly as possible and cool them on ice, if available.

Larger fish can be cleaned and sectioned into convenient chunks for smoking. Soak fish chunks in the brine of your choice, preferably in glass or crookery containers. Remember, DO NOT USE ALUMINUM containers. Soak thin chunks 4-6 hours, thick chunks 8-12 hours. Remove chunks from brine and rinse thoroughly in cool water. Place chunks on paper towels and pat dry. Allow to air dry for about an hour.

When you notice a tacky glaze on the surface of the fish, it's ready for loading. Place chunks on grills at preparation area, then take rack or grills to smoking site. Slip rack or grills into smoker, which may be preheated. Fill flavor pan with desired fuel. Some types of fuel chips are alderwood, applewood, cherrywood and hickory flavor. Thin chunks will be done in about 4 hours; thick ones in about 8-10 hours.

Check fish occasionally. It should be nicely colored and flaky to the touch when done. After removing your fish from the rack or grills, let them cool at room temperature. You may store your smoked fish in aluminum foil or a tightly covered plastic container in the refrigerator for up to four weeks. The longer the drying process, the longer it will keep.

The following recipes are samples of brines you can prepare. Some excellent books on cooking and curing may be available at your local library.

Smoked Salmon Deluxe

Brine:
1/3 cup sugar
1/4 cup non-iodized salt
2 cups soy sauce
1 cup water
1/2 tsp. onion powder
1/2 tsp. garlic powder
1/2 tsp. pepper
1/2 tsp. tabasco sauce
1 cup dry white wine

Brine salmon chunks 8 hours or more, keeping refrigerated.

Fill flavor pan with desired fuel chips. Use 2 to 3 panfuls. Leave in the smoker until drying is completed. This may take 12 hours, depending on the thickness of the fish. Place largest and thickest chunks on the bottom rack.

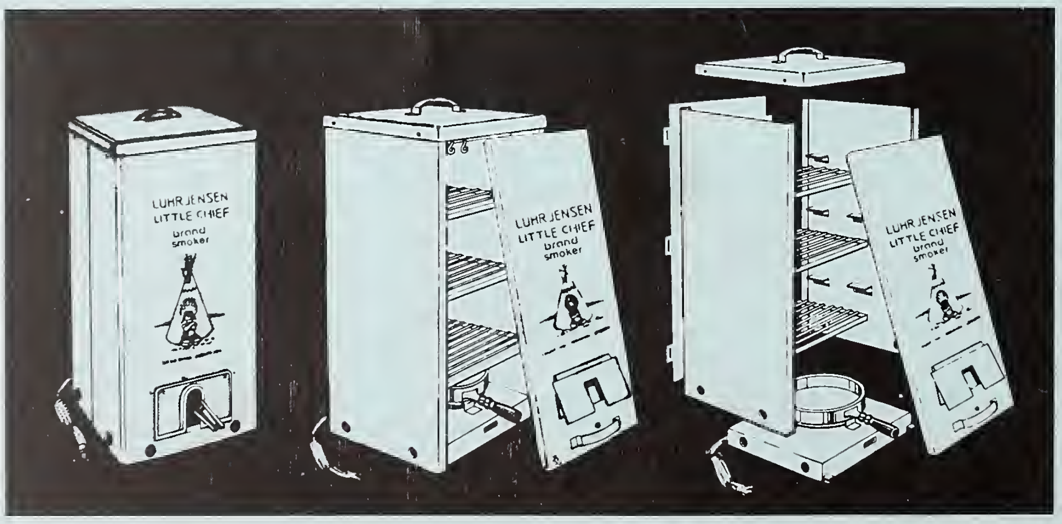
Easy Cure Smoked Fish

2 qts. water
1 cup non-iodized salt
1/4 cup lemon juice
garlic or onion powder to taste

Mix all ingredients and stir. Brine fish 4 or more hours. Rinse and dry. Rack and load. Keep in the smoker 4 to 10 hours, depending on the thickness of the fish.

Excerpts from Little Chief Electric Smoker, Luhr Jensen & Sons, 1980.

Some wonderful fish recipes may be found in the L. L. Bean Game and Fish Cookbook, Angus Cameron and Judith Jones, 1983.



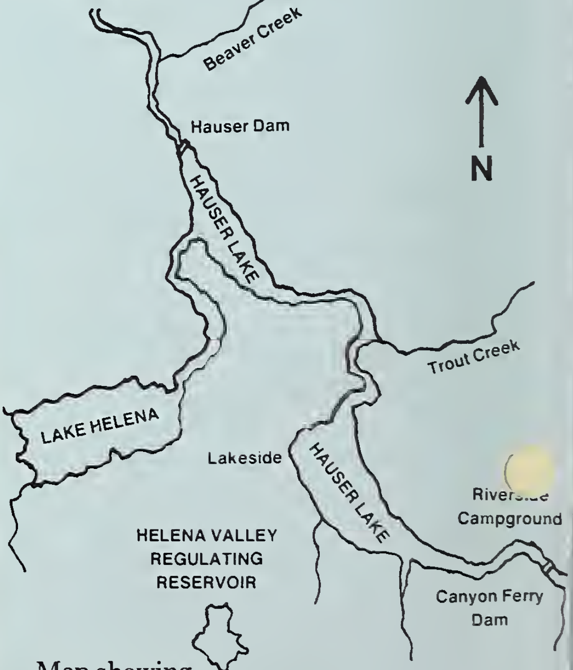
Kokanee, continued

other aquatic insects. The kokanee continue to reside in Hauser Reservoir until they mature at two to three years of age. Once mature, these fish move upstream into the Canyon Ferry tailrace and tributaries to spawn and then die.

Because the kokanee population in Hauser Reservoir is relatively new and is continuing to undergo significant change, it is difficult to predict what direction this fishery will take in future years. Strategies for managing this evolving population are presented in the Hauser Reservoir Fisheries Management Plan, prepared for the five-year period from September 1989 to September 1994. This plan is available upon request from FW&P's Fisheries Division in Helena.

Again this fall, thousands of interested spectators are expected to converge at Riverside Campground below Canyon Ferry Dam to view migrating bald eagles stopping to feed on the kokanee. In the fall of 1989, 261 eagles were counted on December 2, which represented the high count during the concentration. State and federal wildlife officials say up to 500 eagles may visit the site this fall and the high count is again expected to take place the last week of November or first week in December. Weather and the duration of kokanee spawning activity will determine peak viewing dates and the length of time the eagles stay in the area.

Growing numbers of kokanee in Holter Lake below Hauser Dam also have the potential to draw viewers this year. If a strong run materializes, eagle viewers may be treated to viewing opportunities in this area as well.



Map showing
Hauser and Canyon Ferry Dams.

Giant Springs Trout Hatchery

The Giant Springs Trout Hatchery, located just north of Great Falls on the banks of the Missouri River, lies just downstream from the historic "Giant Springs" of Lewis and Clark fame, which provides water for the hatchery. The hatchery, one of Montana's largest trout production facilities, incorporates Montana's fish health lab, which serves all of the state's hatcheries.

The Giant Springs Hatchery began operating in 1923, with nine circular and six rectangular outside raceways and 20 troughs inside the hatchery. As part of a major renovation of the hatchery from 1984 through 1985, 24 new outside raceways were constructed, along with a new hatchery building, rearing troughs and egg incubation facilities. With these improvements, Giant Springs now stands as one of the most modern fish production facilities in Montana's nine-hatchery system.

Giant Springs flows at an estimated 7.8 million gallons of water per hour, most of which runs directly into the Missouri River. During full capacity, the hatchery requires 9,100 gallons per minute, most of which is gravity-fed to the outside raceways. Water for the hatchery building, where hatching and early rearing is conducted, is pumped through a packed column degasser to condition and aerate the water. Water to outside raceways is not treated. The Springs' constant water temperature of 54°F. proves to be an excellent water temperature for rearing trout.

Giant Springs rears primarily rainbow trout and kokanee salmon. For the past several years, between 500,000 and 700,000 of the hatchery's kokanee have been planted annually into Flathead Lake. Most of the rainbow trout produced are planted within a 150-mile radius of Great Falls. However, from time to time, trout from Giant Springs are shipped to other areas of the state.

Visitors to adjacent Giant Springs State Park also are encouraged to visit the hatchery, where an interpretive center explains the operation and functions of fish production facilities like Giant Springs. Visitors are welcome from 8 to 5.

Montana's Fish & Wildlife Resources: Will They Stay A World Above The Rest?

As more and more people have come to enjoy Montana's outdoor experiences, the responsibility to protect our resources and expand the scientific expertise of the Montana Department of Fish, Wildlife and Parks has also grown by leaps and bounds.

To keep pace with changing times in the past five years alone FW&P began to manage:

- a Block Management Program that has opened up nearly five million acres of private land to sportsmen;
- an undercover Special Investigation Unit to combat the growing threat of organized fish and wildlife poachers and traffickers;
- programs to enhance waterfowl, upland game bird and fish habitats;
- a Watchable Wildlife program that seeks to expand opportunities to enjoy Montana's wildlife resources;
- a land easement and acquisition program that generates more than $2 million each year to secure key wildlife habitats;
- an intensive commitment to establish warmwater fisheries in selected waters across Montana;
- a high-profile conservation education effort in Montana elementary and secondary schools that seeks to train educators to use "Project Wild," a unique curriculum that teaches children how, not what, to think about natural resources;
- the "Crossing the Barriers" program to improve access for the disabled to recreational opportunities.

Yet, pressures and impacts on our resources continue to grow and they have begun to strain the ability of FW&P to keep pace with current demands at present funding levels.

Funding projections show FW&P could face a $1 million shortfall by 1992 and a $4.5 million shortfall by 1994 (and this does not include the well-publicized financial problems of FW&P's Parks Division).

Montana law appropriately prohibits FW&P from spending money it does not have. So, without a funding increase or adjustment, the people of Montana may face elimination or cutbacks in new and on-going programs, such as fish stocking in lakes, game warden activity, big game and fish surveys, Block Management, statewide information and education activities and other important programs.

FW&P began working on rectifying the expected funding shortfall several months ago. So far it has cut back on equipment purchases and hiring, and has adjusted some accounting procedures for a total savings of more than $1.1 million.

At this stage in the process, FW&P is evaluating alternative funding solutions to see how well each would keep pace with changing times while allowing FW&P to remain in the forefront of fish and wildlife management.

Traditionally, FW&P has represented the people of Montana in discussions and negotiations of issues affecting fish, wildlife and their habitats. In the past, FW&P has been able to back up its representation with sound technical information, and with the support of the people of Montana the Department has established a laudable record of success. Now, more than ever, we need your help, support and ideas.

Please contact any FW&P office or employee if you are concerned about these issues or have some ideas you would like to share. Further information about emerging funding options will be available from the Conservation Education Division, FW&P, 1420 East Sixth Avenue, Helena, MT 59620.

Fish Quiz

1. Kokanee are the landlocked form of what species of salmon? ___________
2. Although opportunists, the main staple of a bald eagle's diet is ___________.
3. The length of the eagle viewing season at Hauser Lake is dependent on two factors. They are ___________.
4. The main staple of a kokanee's diet is ___________.
5. It is illegal to possess a live bald eagle but keeping a feather you find is okay. (true or false)

1. Pacific sockeye
2. Fish
3. Food availability (kokanee) and weather
4. Micro-crustacea
5. False. Keeping any parts, including feathers, of an endangered species is illegal.

Well, I just can't believe you went and paid $5,000 for a toaster that's not worth 20 bucks! That guy must still be laughing!
Oh, yeah? How about yesterday when that fellow sold you that "magic" pen and pencil set for $10,000!

Sucker fish at home

If you would like to share your views or offer suggestions, please send them to us at **FISH LINE,** Department of Fish, Wildlife and Parks, Fisheries Division, 1420 East Sixth Avenue, Helena, MT 59620.

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Pat Graham, Deputy Director
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Larry Peterman, Administrator Fisheries Division
Margie Peterson, Editor

Calendar of Events October 1990 - February 1991

October 12-13, 1990	Fish and Game Commission Meeting, Helena FY 92-93 operations and capital budget proposals
October 22-23, 1990	Montana Water Resources Association Meeting Park Plaza, Helena
November 8-9, 1990	Fish and Game Commission Meeting, Deer Lodge Commercial fish regulations; tentative fish regulations
November 22, 1990	Happy Thanksgiving!
November 30, 1990	General Stream Fishing Season Closes
December 14-15, 1990	Fish and Game Commission Meeting, Helena Tentative spring gobbler permit quotas Final 1991 Parks annual fee rules
December 25, 1990	Merry Christmas and Happy New Year!
January 7, 1991	Legislative Session begins in Helena
February 6-8, 1991	Montana Chapter American Fisheries Society Annual meeting, Missoula

Produced by the Helena Fisheries Division of the Department of Fish, Wildlife and Parks.

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